Claims

What is claimed is:

1. A device comprising:

a sensor based on a regenerative surface air sampler, and

a communication interface coupled to the sensor.

2. The device according to claim 1 wherein the sensor is selected from the group consisting of biological, chemical, and radiological sensors.

3. The device according to claim 1 wherein the communication interface is a transmitter.

4. The device according to claim 1 wherein the communication interface is a transceiver.

5. The device according to claim above, wherein the communication interface is configured to communicate over an automation system network.

6. The device according to claim 5 wherein the automation system network comprises a LonWorks® automation system.

7. The device according to claim 5 wherein the automation system network comprises a CEBus automation system.

8. The device according to claim 1 further comprising a battery backup power supply.

9. A building and its envelope comprising the device according to claim 1.

10. An airplane comprising the device according to claim 1.

11. A system comprising:

a device according to claim 1, wherein the sensor is capable to output a positive response to the communication interface, and

an air sampler coupled to the communication interface, wherein the air sampler can be activated by the positive response capture at least one sample of airborne particles.

12. A system comprising:

a device according to claim 1, wherein the sensor is capable to output a positive response, and

at least one specific sensor selected from the group consisting of a chemical, a biological, and a radiological sensor, wherein the specific sensor is activated by the positive response.

13. A system comprising:

a device according to claim 1, wherein the sensor is capable to output a positive response, and

a second sensor, wherein the second sensor is other than a sensor based on a regenerative surface, and wherein the second is activated by the positive response.

14. An air monitoring system comprising:

a sensor based on a regenerative surface air sampler, and

a controller communicatively coupled to the sensor.

15. The system according to claim 14 wherein the sensor is selected from the group consisting of dumb sensors, smart sensors, and intelligent sensors.

16. The system according to claim 14 wherein the controller is a Neuron® chip.

17. The system according to claim 14 wherein the controller is capable of actuating at least one other component in response to information received from the sensor.

18. An HVAC system comprising a system according to claim 14.

19. A LonWorks® network comprising a system according to claim 14.

20. A network comprising:

a sensor based on a regenerative surface air sampler,

a transceiver for communicating over an automation system network,

at least one actuator,

an air management component coupled to the actuator, and

a controller communicatively coupled to the sensor, the transceiver, and the actuator.

21. The network according to claim 20 wherein the controller actuates the air management component based on information received from the sensor.

22. The network according to claim 20 wherein the controller is communicatively coupled to the air management component.

23. The network according to claim 20 wherein the controller is a Neuron® chip.

24. The network according to claim 20 wherein the transceiver communicates using a BACnet protocol.

25. The network according to claim 20 wherein the air management component is selected from the group consisting of a sample capture device, a sample analysis device, an air duct damper, and a particle counter.

26. A system comprising:

a sensor based on a regenerative surface air sampler,

a transceiver for communicating over an automation system network,

a controller communicatively coupled to the sensor and the transceiver.

27. The system according to claim 26 wherein the controller communicates via the transceiver using a BACnet protocol.

28. The system according to claim 26 wherein the controller communicates via the transceiver using LonTalk®.

29. The system according to claim 26 wherein the transceiver communicates wirelessly.

30. The system according to claim 29 wherein the transceiver communicates via an RF link to an RF link network.

31. The system according to claim 26 wherein the transceiver communicates via a wired link.

32. A method of constructing a network of sensors, the method comprising adding a sensor based on a regenerative surface air sampler to the network.

33. The method according to claim 32 wherein the sensor is a sensor of biological particles.

34. The method according to claim 32 where the network comprises a smoke or fire sensor.

35. A method of controlling ambient air quality, the method comprising:

sampling ambient air with at least one sensor based on a regenerative surface air sampler, and

upon receiving an indication of a probable threat from the sensor, performing a responsive step.

36. The method according to claim 32, wherein the responsive step comprises actuating an air management component.

37. The method according to claim 32 wherein the responsive step comprises activating at least one sampler specific sensor.

38. The method according to claim 32 wherein the responsive step comprises issuing an warning signal.

39. The method according to claim 35 further comprising transmitting the alert signal to facility management.

40. The method according to claim 35 further comprising transmitting the alert signal to a fire department or law enforcement agency. 34. The method according to claim 32 where the network comprises a smoke or fire sensor.